FIG.1

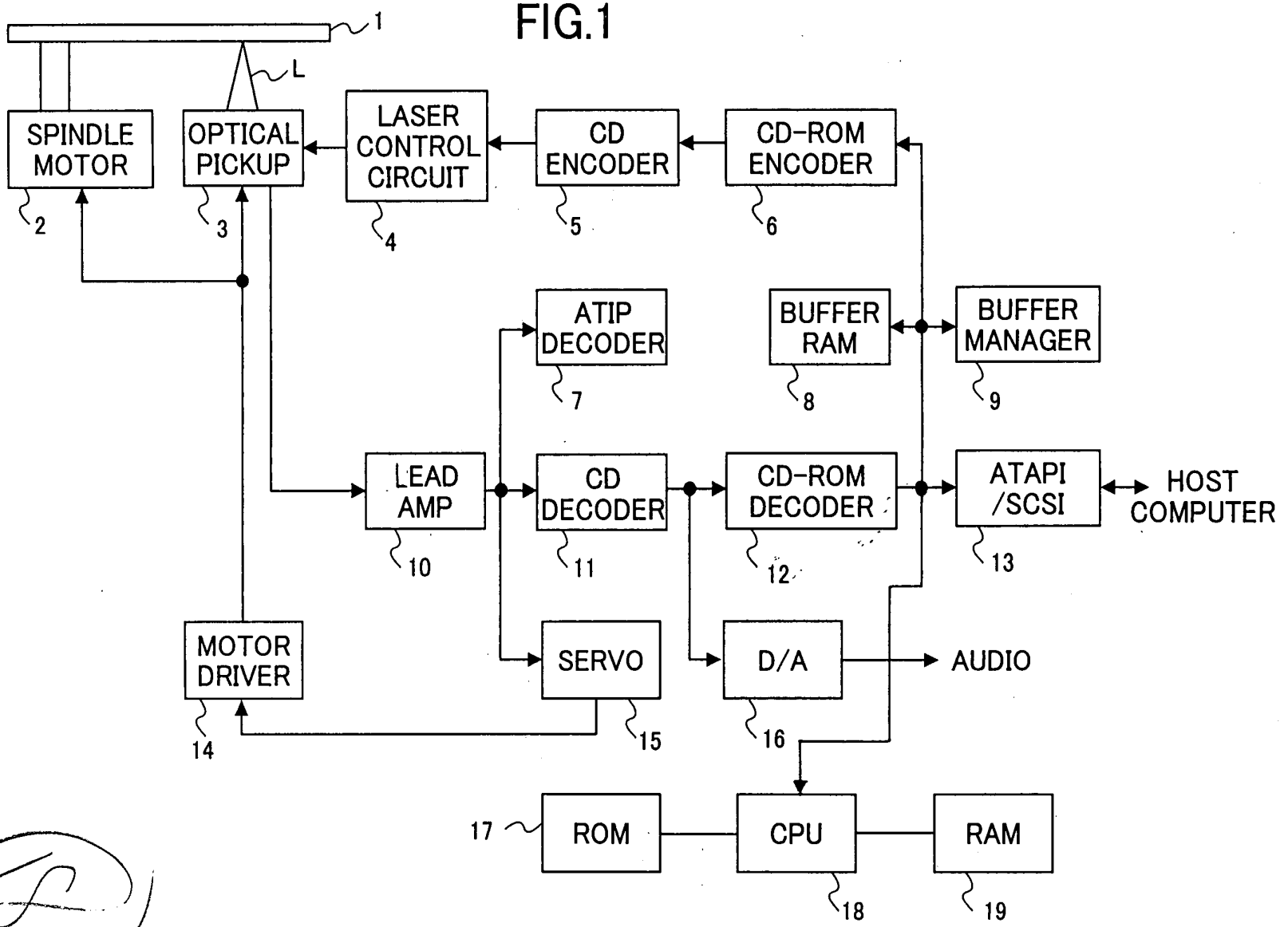

1
L
SPINDLE MOTOR
2
OPTICAL PICKUP
3
LASER CONTROL CIRCUIT
4
CD ENCODER
5
CD-ROM ENCODER
6
ATIP DECODER
7
BUFFER RAM
8
BUFFER MANAGER
9
LEAD AMP
10
CD DECODER
11
CD-ROM DECODER
12
ATAPI /SCSI
13
HOST COMPUTER
MOTOR DRIVER
14
SERVO
15
D/A
16
AUDIO
17
ROM
CPU
18
RAM
19

FIG.2

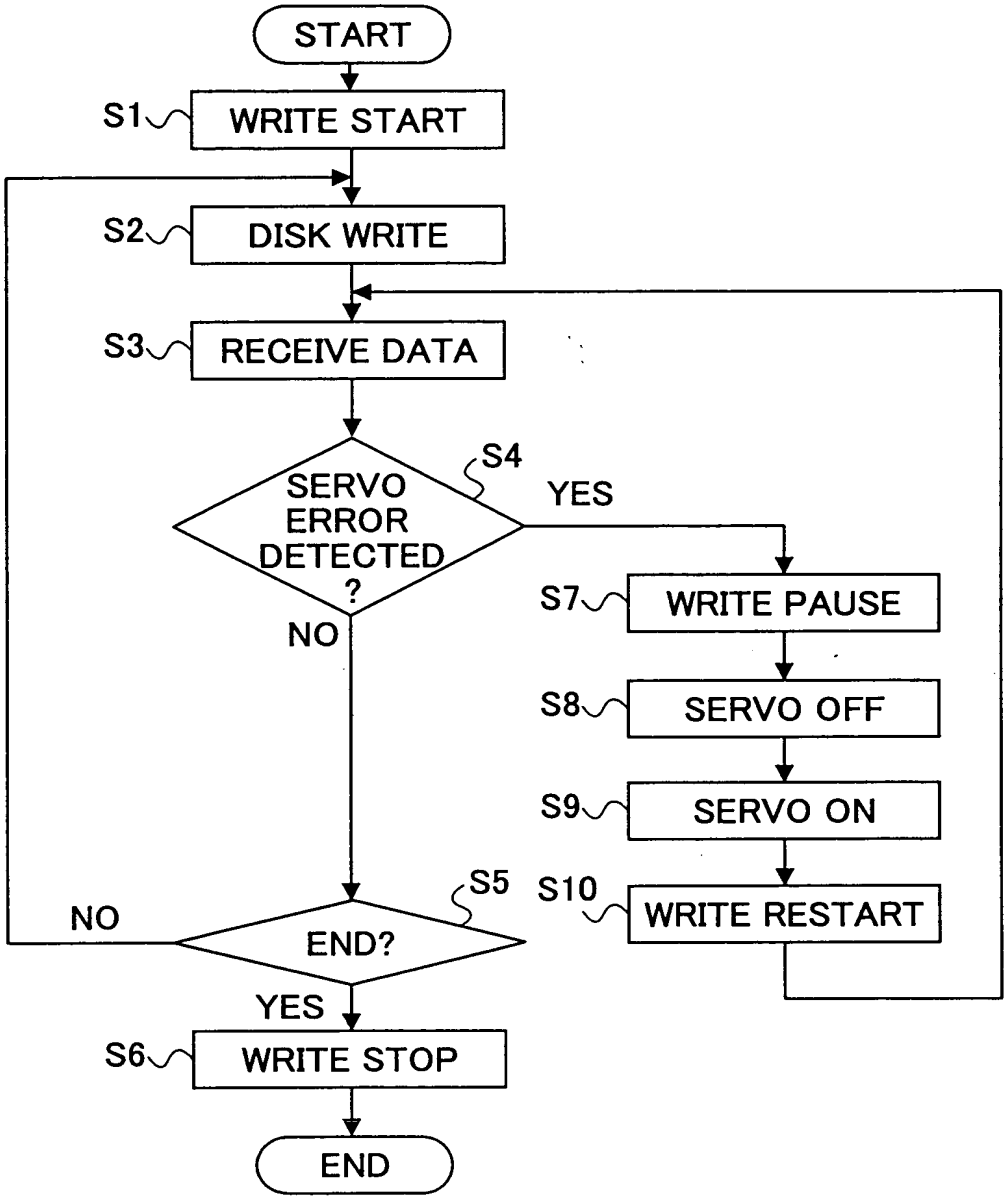

START
S1
WRITE START
S2
DISK WRITE
S3
RECEIVE DATA
S4
SERVO ERROR DETECTED ?
YES
NO
S7
WRITE PAUSE
S8
SERVO OFF
S9
SERVO ON
S10
WRITE RESTART
S5
END?
NO
YES
S6
WRITE STOP
END

FIG.3

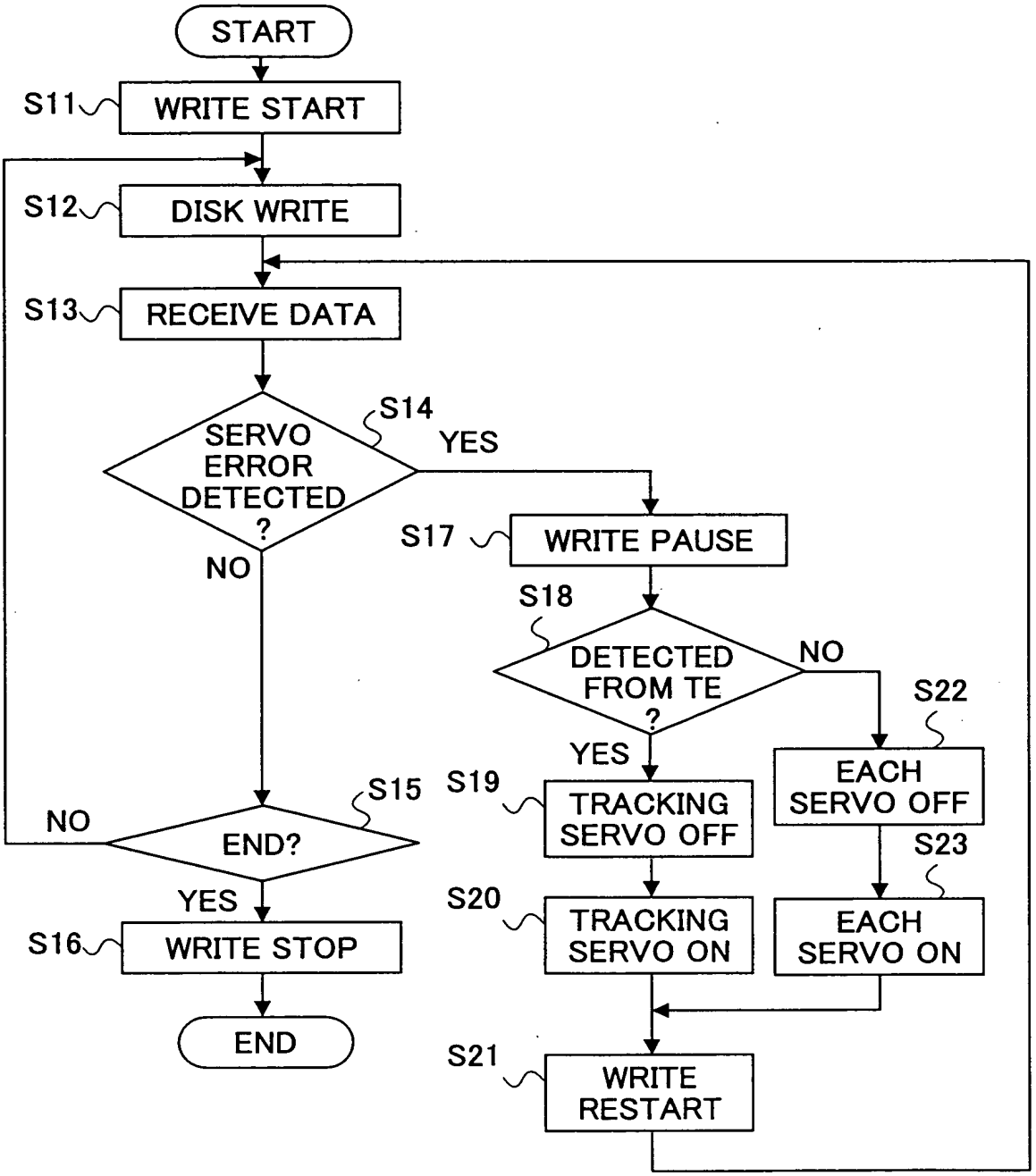

START
S11
WRITE START
S12
DISK WRITE
S13
RECEIVE DATA
S14
SERVO ERROR DETECTED ?
YES
NO
S17
WRITE PAUSE
S18
DETECTED FROM TE ?
NO
YES
S22
EACH SERVO OFF
S19
TRACKING SERVO OFF
S23
EACH SERVO ON
S20
TRACKING SERVO ON
S15
END?
NO
YES
S16
WRITE STOP
END
S21
WRITE RESTART

FIG.4

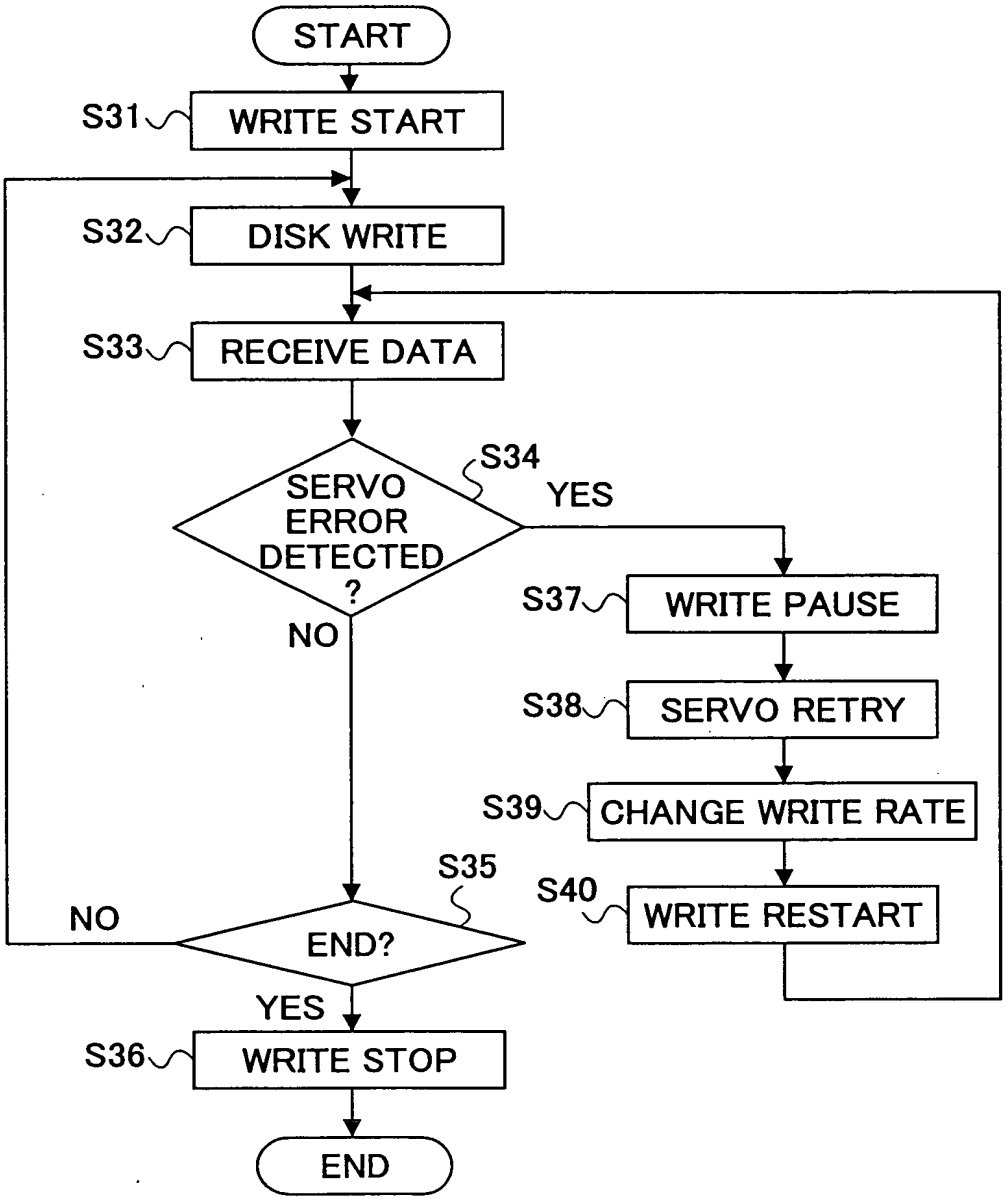

START
S31
WRITE START
S32
DISK WRITE
S33
RECEIVE DATA
S34
SERVO ERROR DETECTED ?
YES
NO
S37
WRITE PAUSE
S38
SERVO RETRY
S39
CHANGE WRITE RATE
S40
WRITE RESTART
S35
NO
END?
YES
S36
WRITE STOP
END

FIG.5

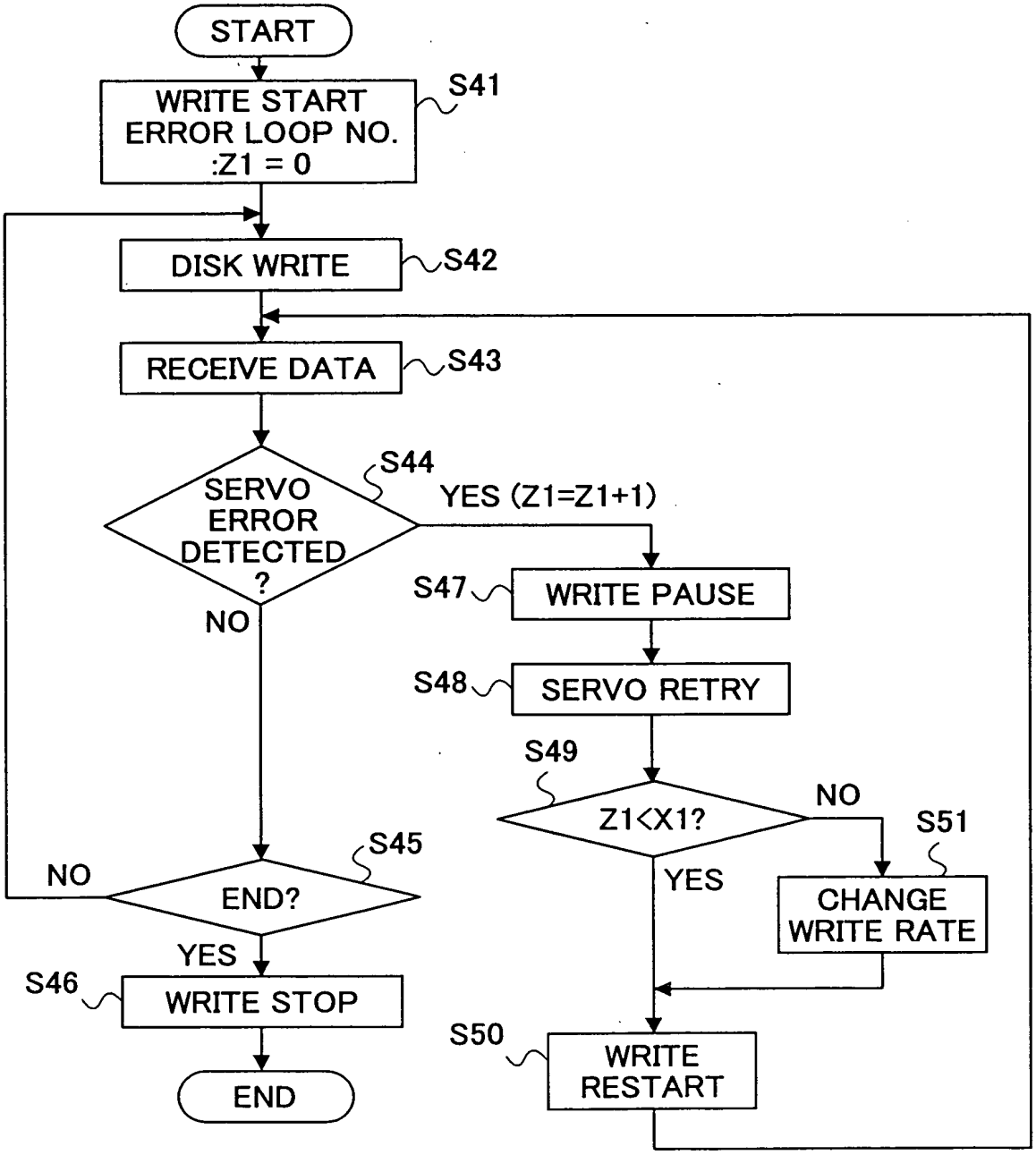

START
WRITE START ERROR LOOP NO. :Z1 = 0
S41
DISK WRITE
S42
RECEIVE DATA
S43
SERVO ERROR DETECTED ?
S44
YES (Z1=Z1+1)
NO
S47
WRITE PAUSE
S48
SERVO RETRY
S49
Z1<X1?
NO
S51
YES
CHANGE WRITE RATE
S45
NO
END?
YES
S46
WRITE STOP
END
S50
WRITE RESTART

FIG.6

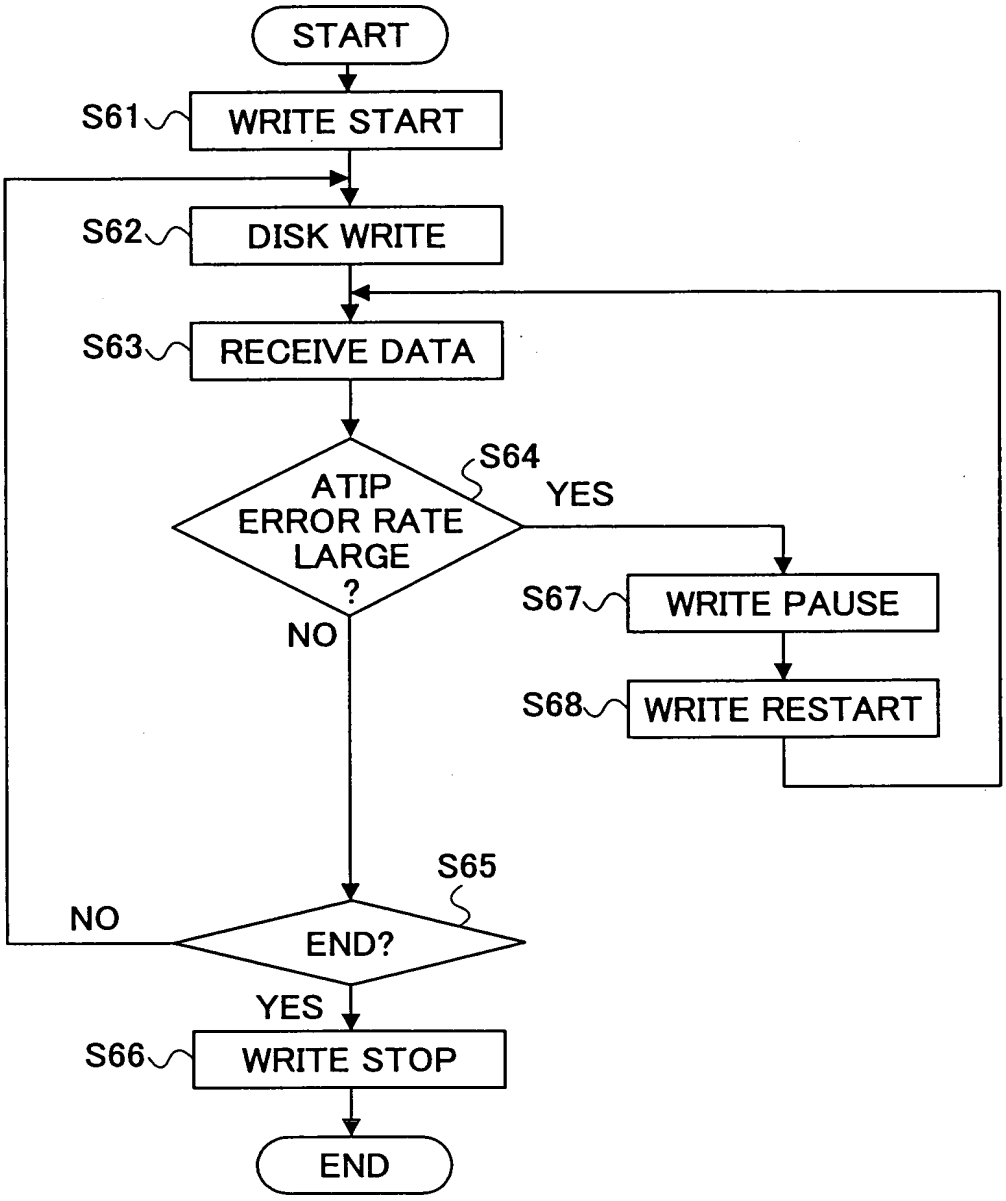

START
S61
WRITE START
S62
DISK WRITE
S63
RECEIVE DATA
S64
ATIP ERROR RATE LARGE ?
YES
NO
S67
WRITE PAUSE
S68
WRITE RESTART
S65
END?
NO
YES
S66
WRITE STOP
END

FIG.7

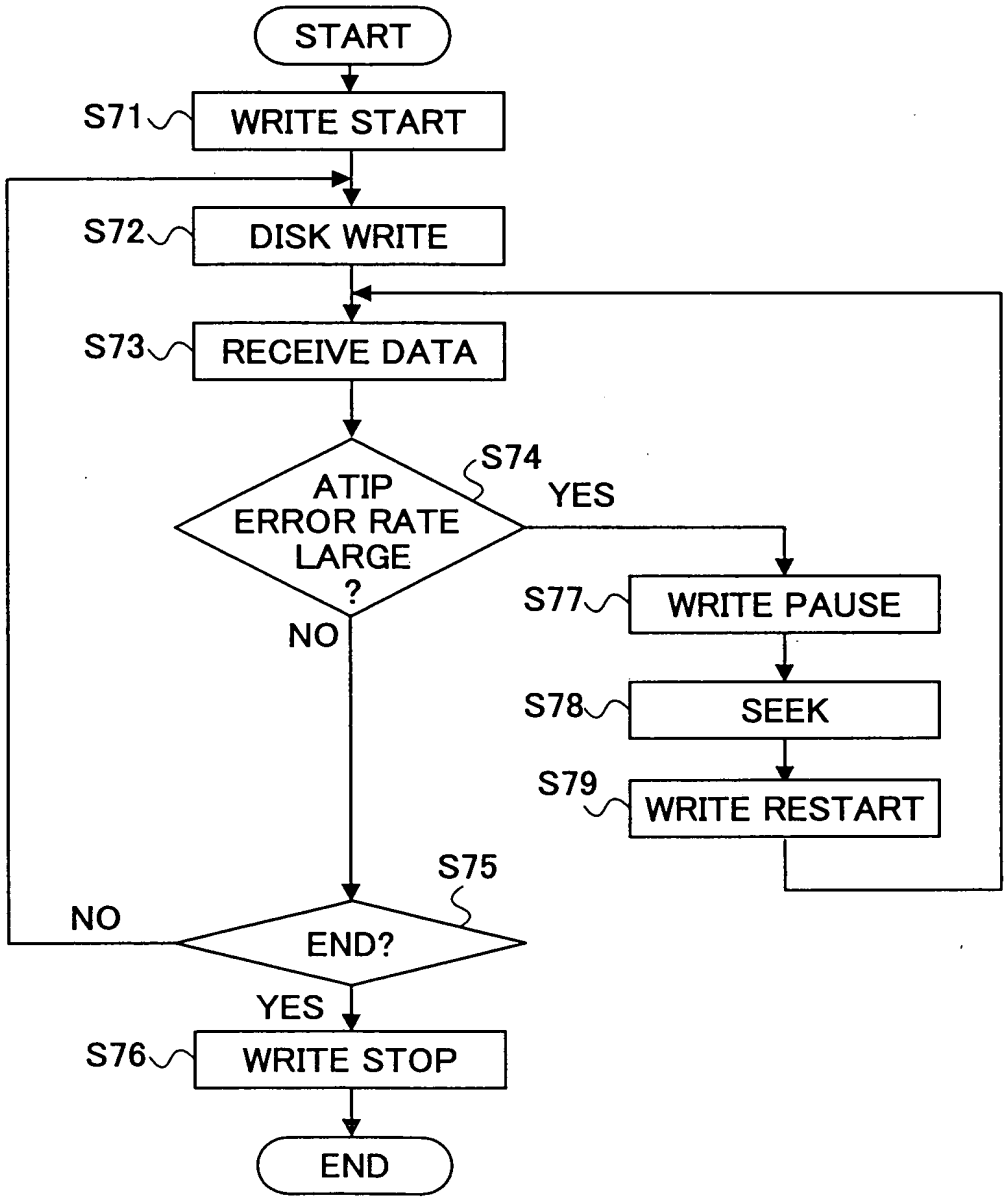

START
S71
WRITE START
S72
DISK WRITE
S73
RECEIVE DATA
S74
ATIP ERROR RATE LARGE ?
YES
NO
S77
WRITE PAUSE
S78
SEEK
S79
WRITE RESTART
S75
END?
NO
YES
S76
WRITE STOP
END

FIG.8

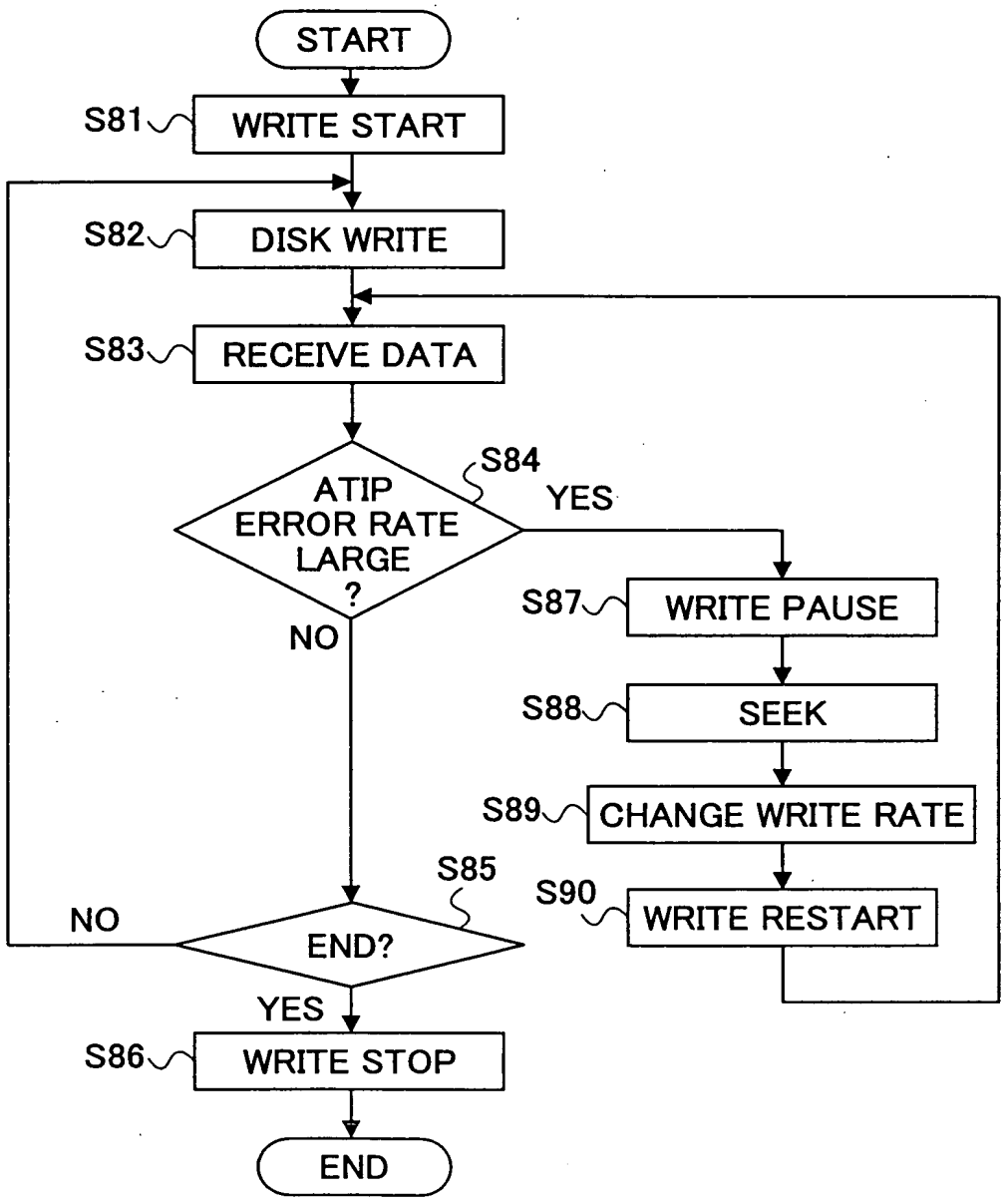

START
S81
WRITE START
S82
DISK WRITE
S83
RECEIVE DATA
S84
ATIP ERROR RATE LARGE ?
YES
NO
S87
WRITE PAUSE
S88
SEEK
S89
CHANGE WRITE RATE
S90
WRITE RESTART
S85
NO
END?
YES
S86
WRITE STOP
END

FIG.9

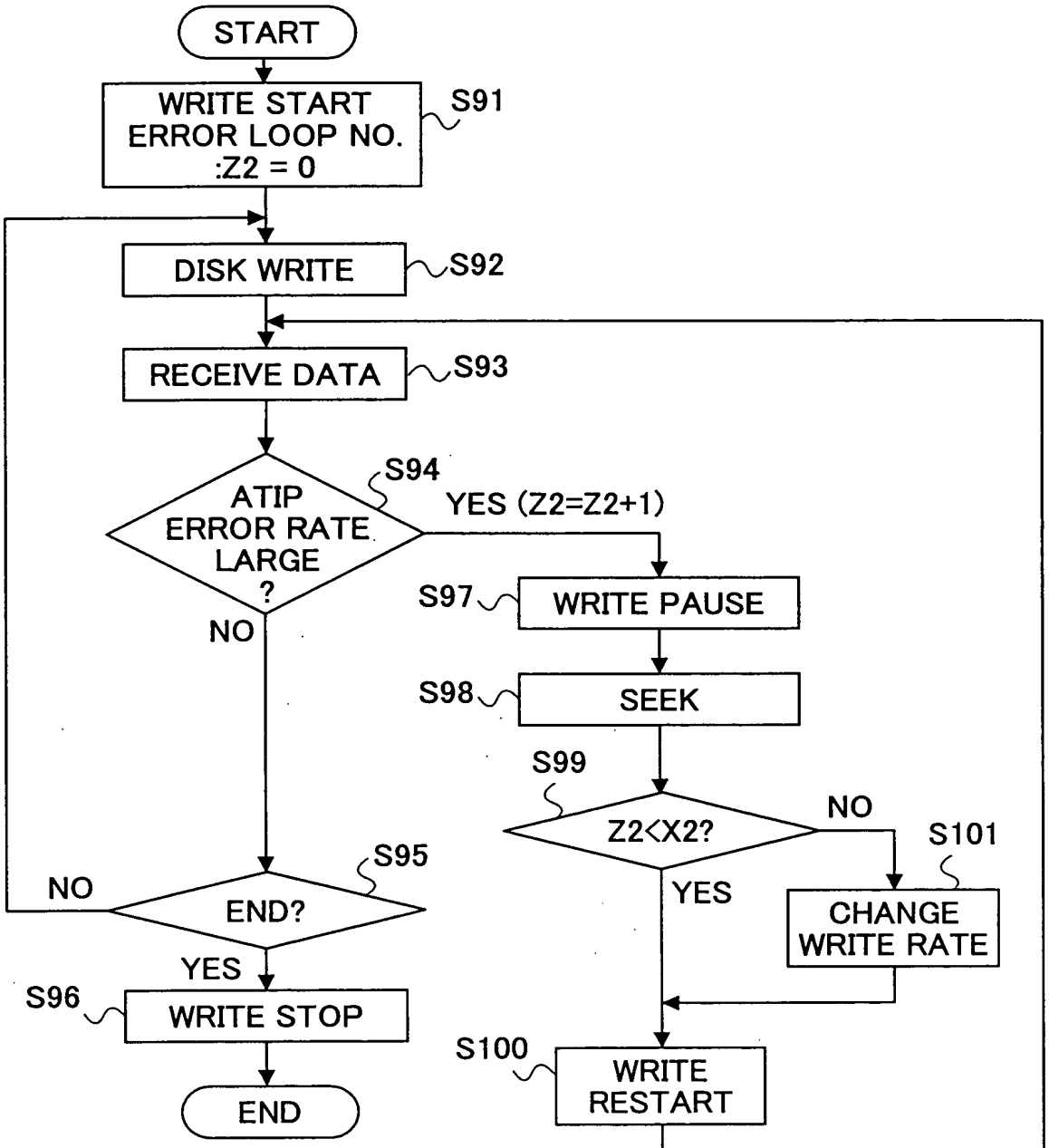

START
WRITE START ERROR LOOP NO. :Z2 = 0
S91
DISK WRITE
S92
RECEIVE DATA
S93
ATIP ERROR RATE LARGE ?
S94
YES (Z2=Z2+1)
NO
S97
WRITE PAUSE
S98
SEEK
S99
Z2<X2?
NO
S101
YES
CHANGE WRITE RATE
S100
WRITE RESTART
S95
NO
END?
YES
S96
WRITE STOP
END

FIG.10

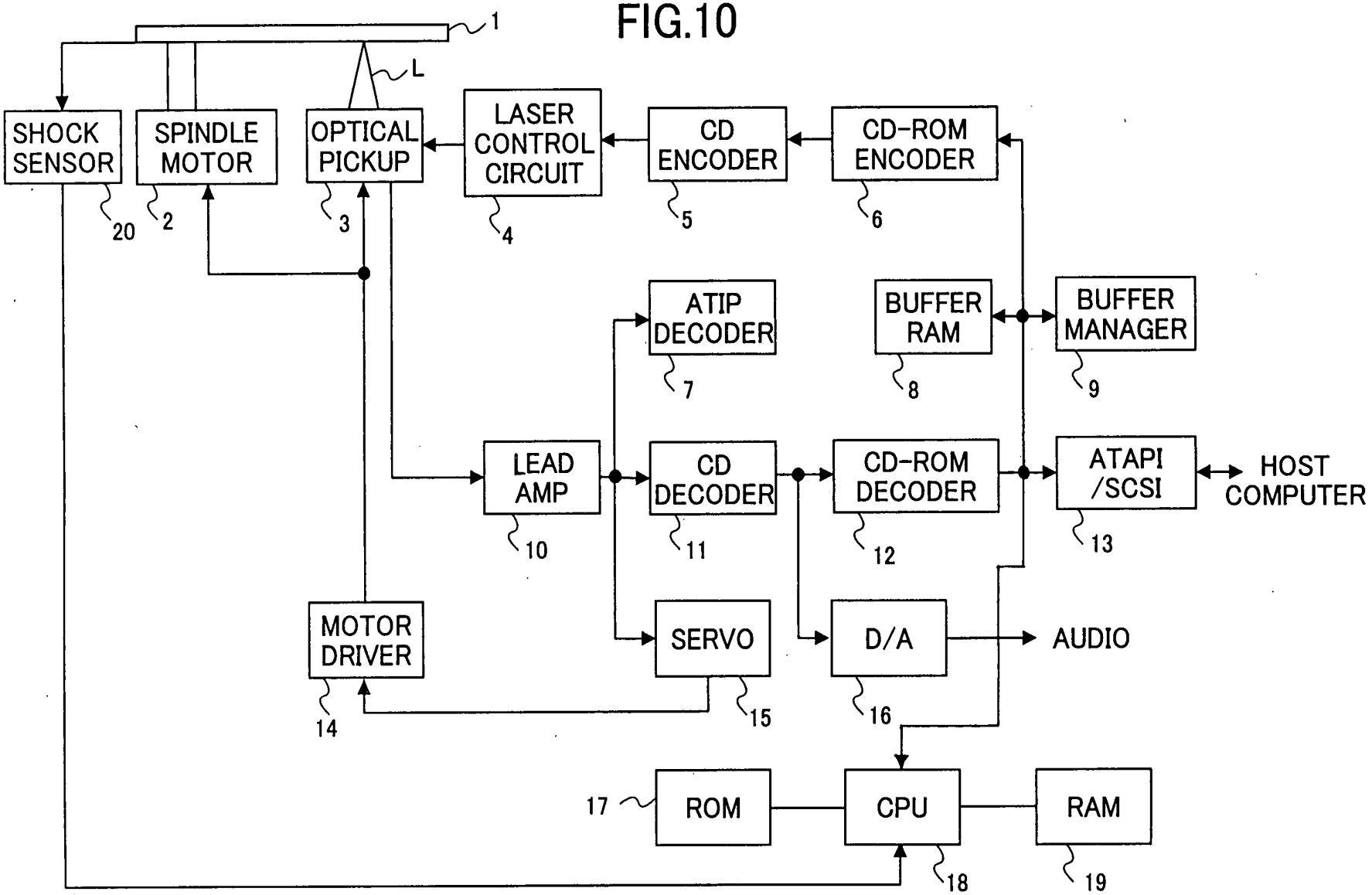

1
L
SHOCK SENSOR
SPINDLE MOTOR
OPTICAL PICKUP
LASER CONTROL CIRCUIT
CD ENCODER
CD-ROM ENCODER
20
2
3
4
5
6
ATIP DECODER
BUFFER RAM
BUFFER MANAGER
7
8
9
LEAD AMP
CD DECODER
CD-ROM DECODER
ATAPI /SCSI
HOST COMPUTER
10
11
12
13
MOTOR DRIVER
SERVO
D/A
AUDIO
14
15
16
17
ROM
CPU
RAM
18
19

FIG.11

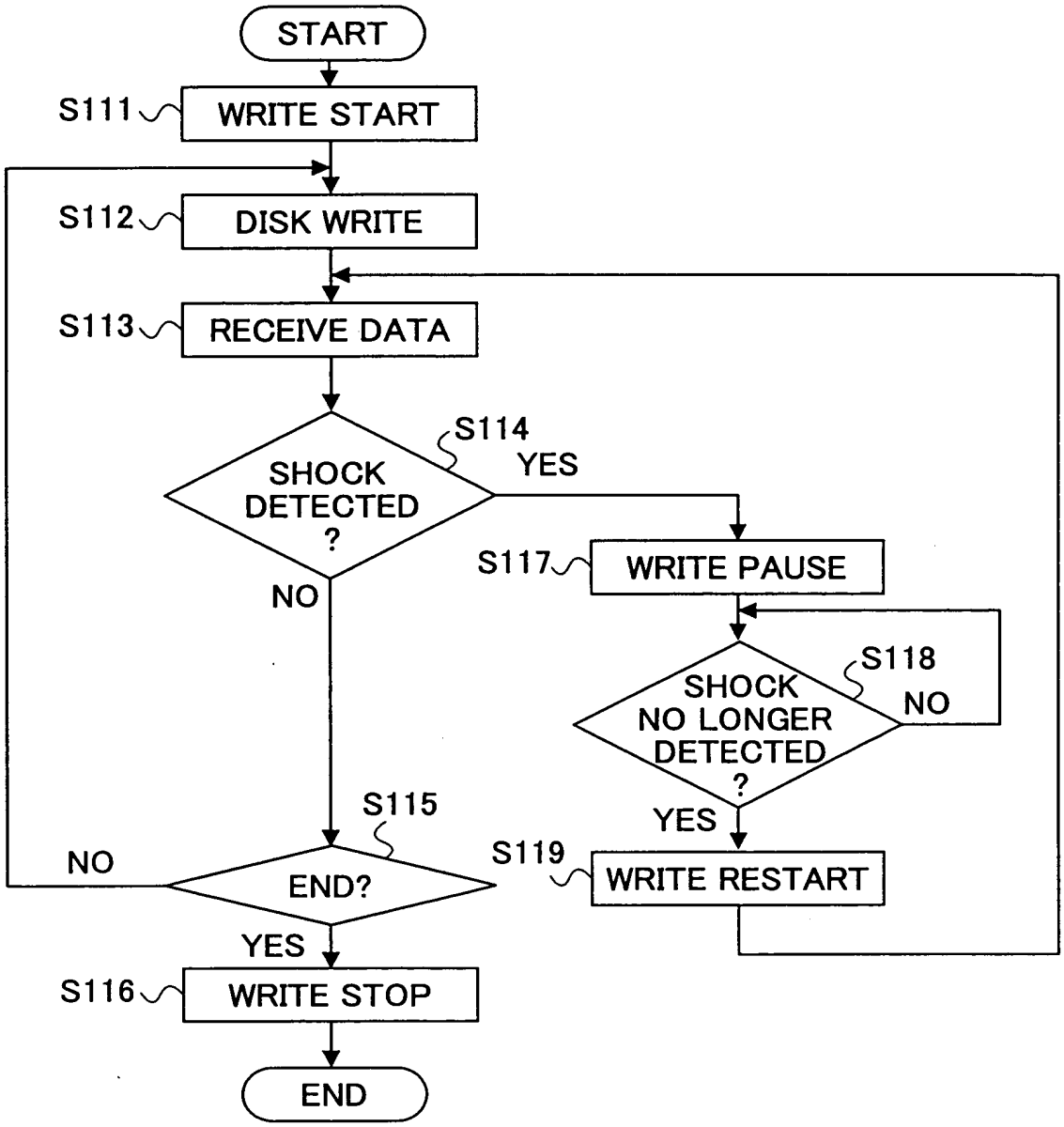

START
S111
WRITE START
S112
DISK WRITE
S113
RECEIVE DATA
S114
SHOCK DETECTED ?
YES
NO
S117
WRITE PAUSE
S118
SHOCK NO LONGER DETECTED ?
NO
YES
S119
WRITE RESTART
S115
END?
NO
YES
S116
WRITE STOP
END

FIG.12

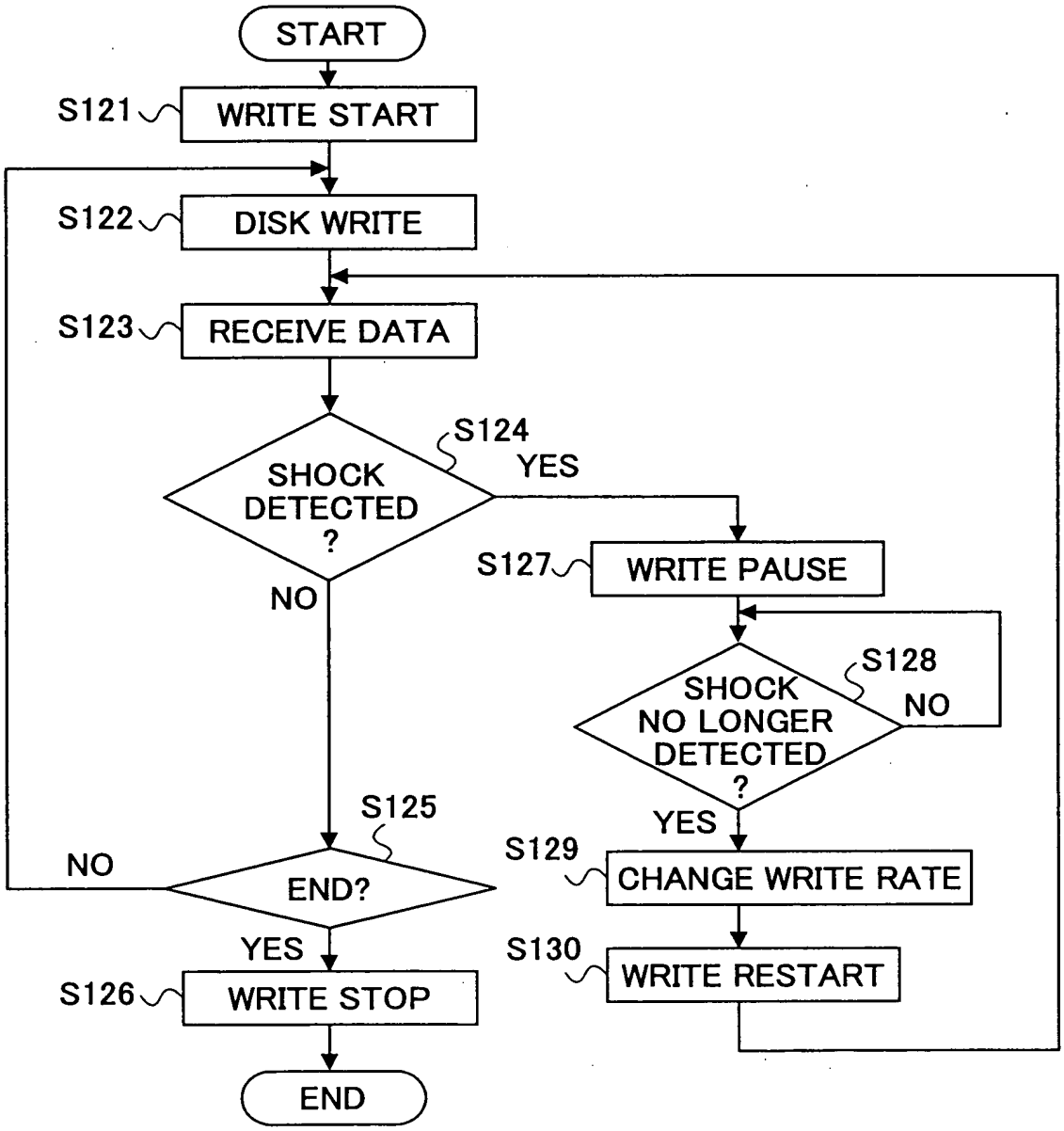

START
S121
WRITE START
S122
DISK WRITE
S123
RECEIVE DATA
S124
SHOCK DETECTED ?
YES
NO
S127
WRITE PAUSE
S128
SHOCK NO LONGER DETECTED ?
NO
YES
S129
CHANGE WRITE RATE
S130
WRITE RESTART
S125
END?
NO
YES
S126
WRITE STOP
END

FIG.13

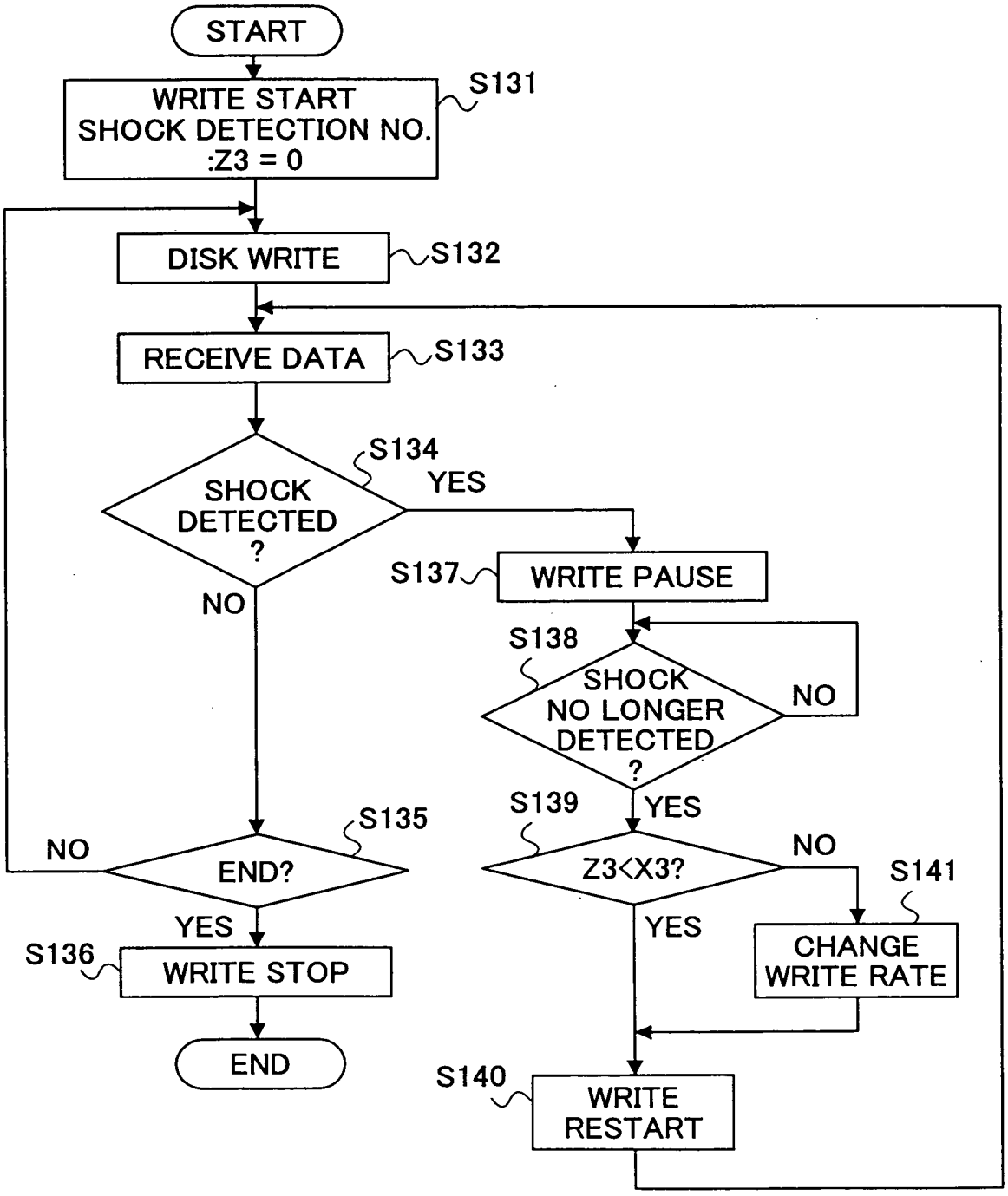

START
WRITE START
SHOCK DETECTION NO.
:Z3 = 0
S131
DISK WRITE
S132
RECEIVE DATA
S133
SHOCK
DETECTED
?
S134
YES
NO
S137
WRITE PAUSE
S138
SHOCK
NO LONGER
DETECTED
?
NO
S139
YES
Z3<X3?
NO
S141
YES
CHANGE
WRITE RATE
S135
NO
END?
YES
S136
WRITE STOP
END
S140
WRITE
RESTART

FIG.14

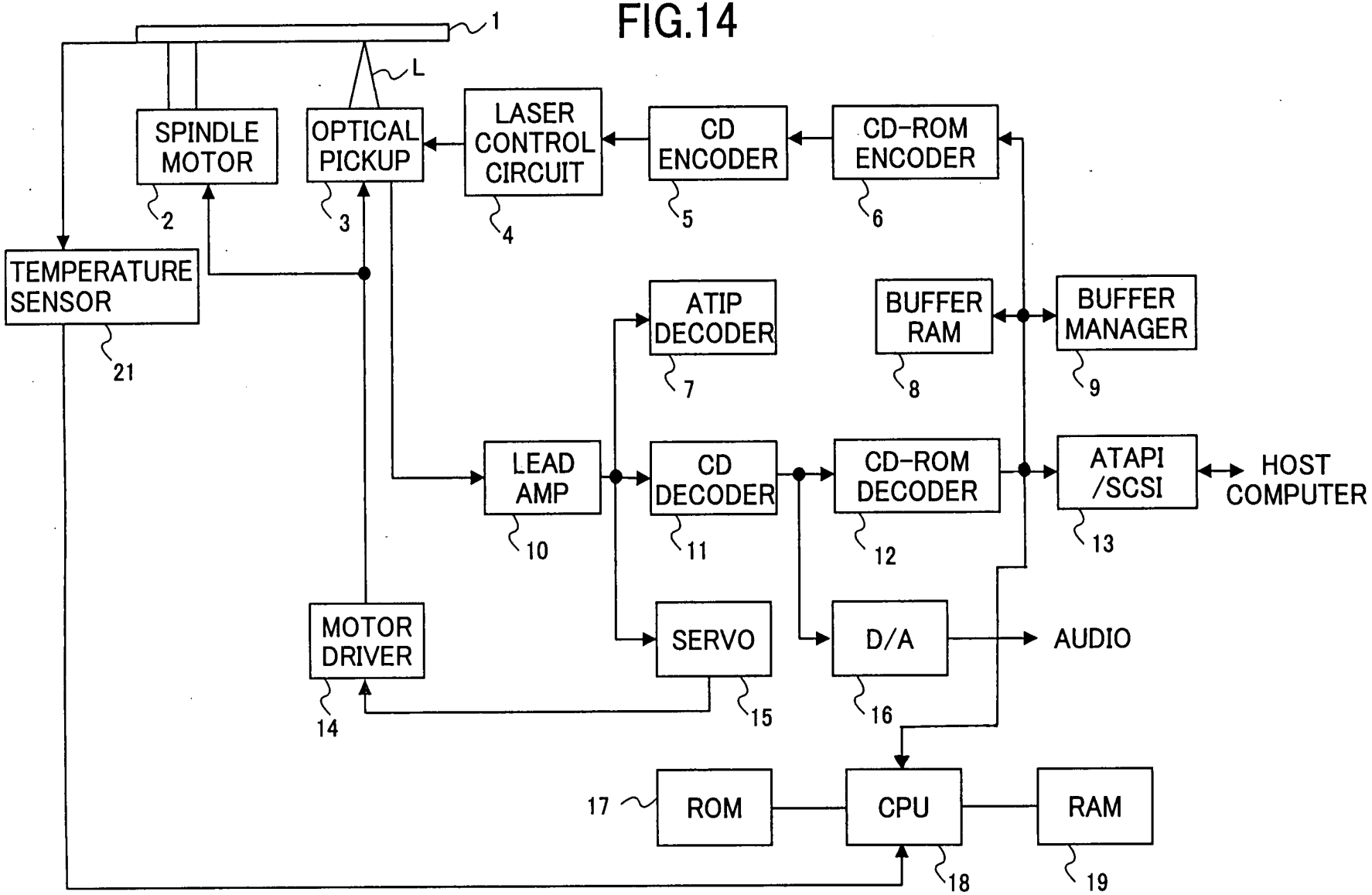

1
L
SPINDLE MOTOR
2
OPTICAL PICKUP
3
LASER CONTROL CIRCUIT
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CD ENCODER
5
CD-ROM ENCODER
6
TEMPERATURE SENSOR
21
ATIP DECODER
7
BUFFER RAM
8
BUFFER MANAGER
9
LEAD AMP
10
CD DECODER
11
CD-ROM DECODER
12
ATAPI /SCSI
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HOST COMPUTER
MOTOR DRIVER
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SERVO
15
D/A
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AUDIO
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ROM
CPU
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RAM
19

FIG.15

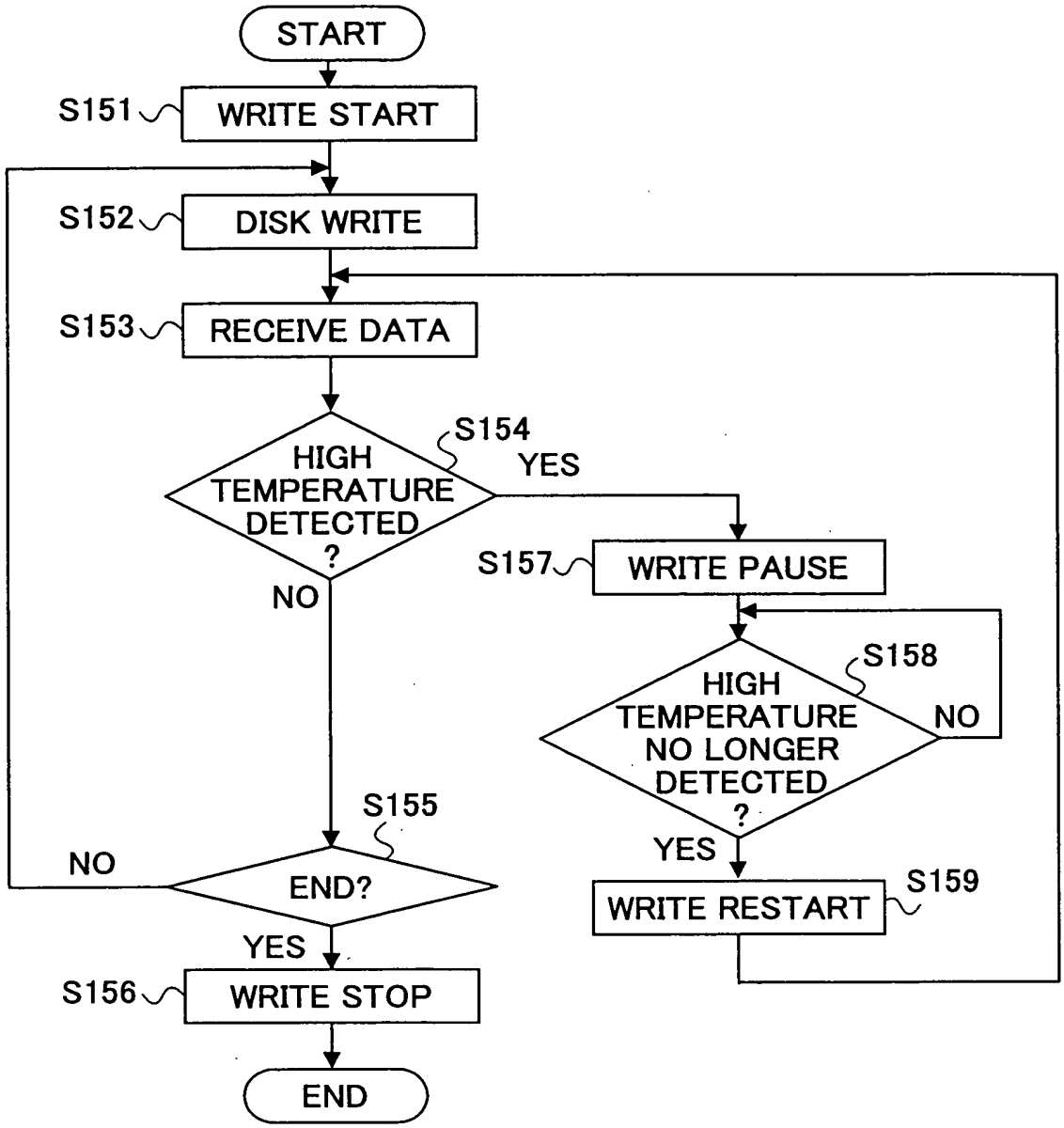

START
S151
WRITE START
S152
DISK WRITE
S153
RECEIVE DATA
S154
HIGH TEMPERATURE DETECTED ?
YES
NO
S157
WRITE PAUSE
S158
HIGH TEMPERATURE NO LONGER DETECTED ?
NO
YES
S159
WRITE RESTART
S155
END?
NO
YES
S156
WRITE STOP
END

FIG.16

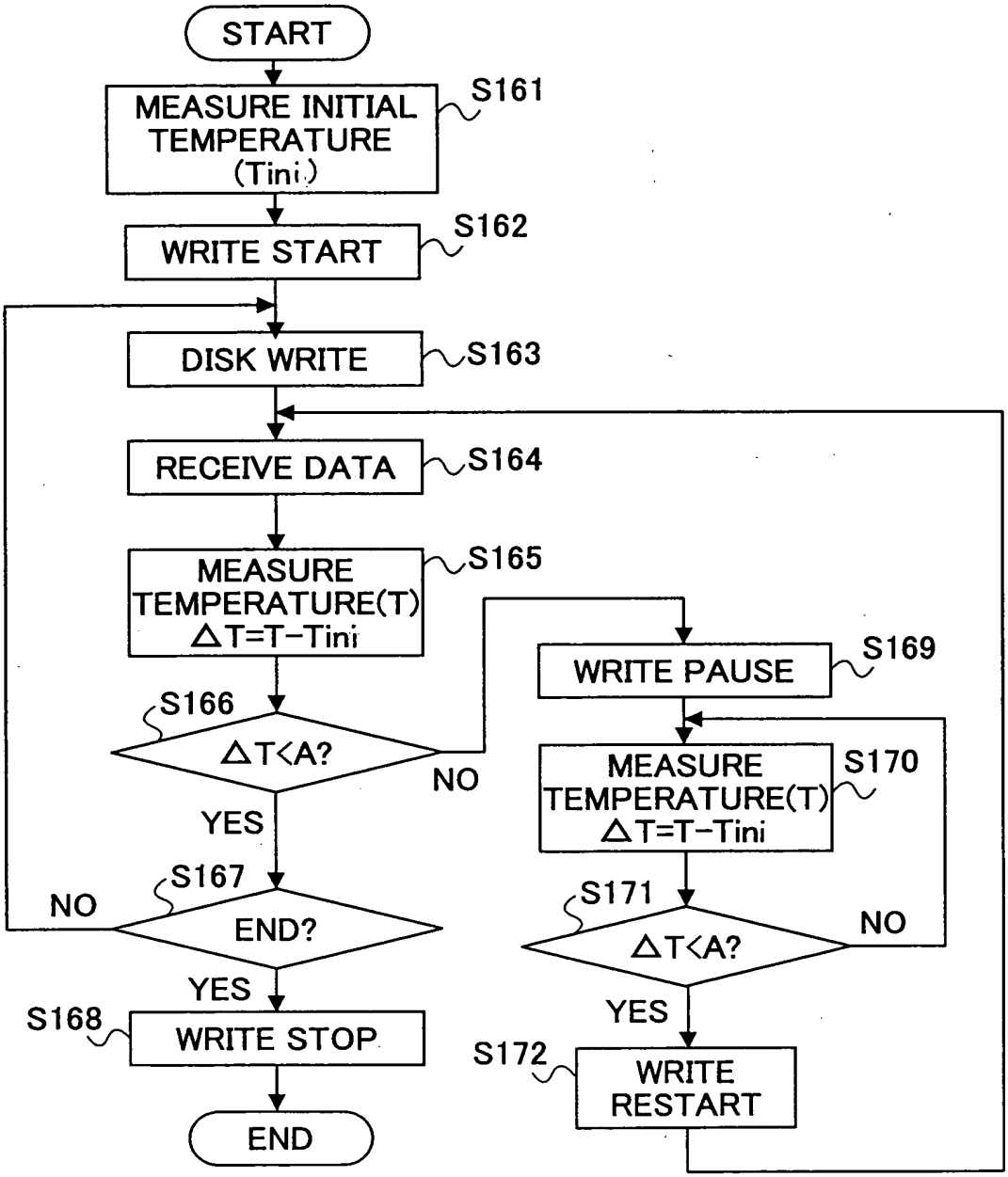

START
MEASURE INITIAL TEMPERATURE (Tini)
S161
WRITE START
S162
DISK WRITE
S163
RECEIVE DATA
S164
MEASURE TEMPERATURE(T) ΔT=T-Tini
S165
S166
ΔT<A?
NO
YES
S167
NO
END?
YES
S168
WRITE STOP
END
WRITE PAUSE
S169
MEASURE TEMPERATURE(T) ΔT=T-Tini
S170
S171
ΔT<A?
NO
YES
S172
WRITE RESTART

FIG.17

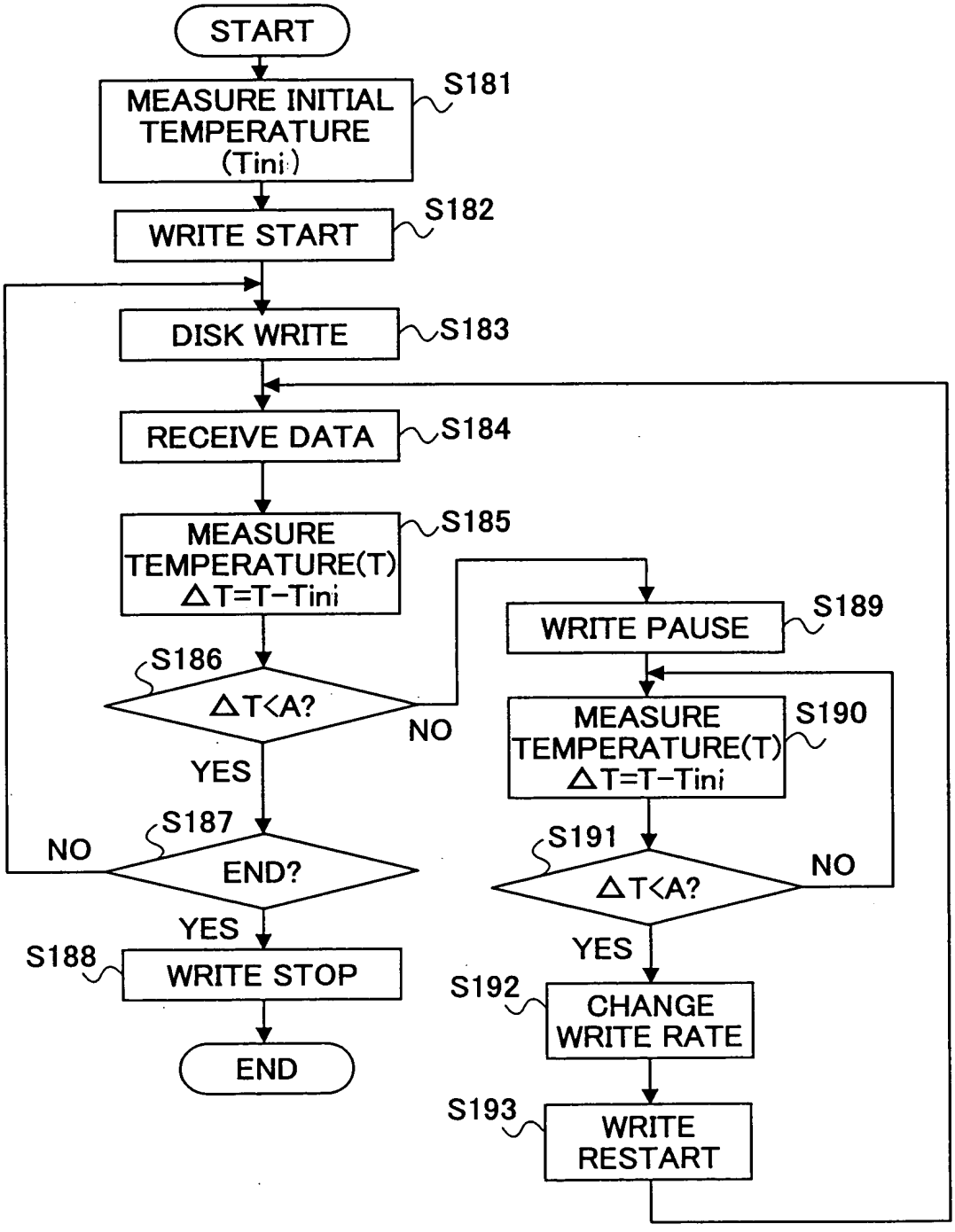
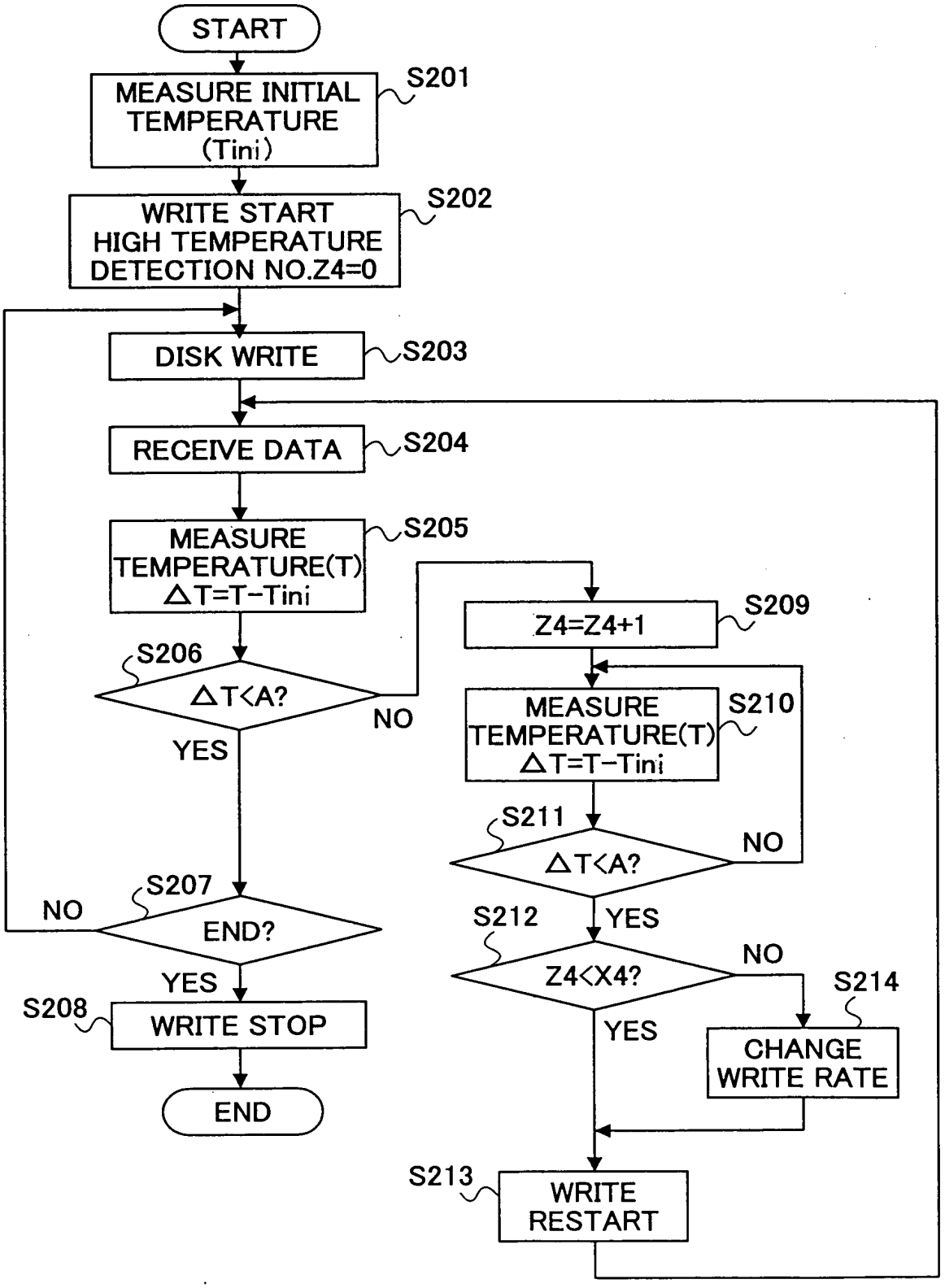

START
MEASURE INITIAL TEMPERATURE (Tini)
S181
WRITE START
S182
DISK WRITE
S183
RECEIVE DATA
S184
MEASURE TEMPERATURE(T) ΔT=T-Tini
S185
S186
ΔT<A?
NO
YES
S187
NO
END?
YES
S188
WRITE STOP
END
WRITE PAUSE
S189
MEASURE TEMPERATURE(T) ΔT=T-Tini
S190
S191
ΔT<A?
NO
YES
S192
CHANGE WRITE RATE
S193
WRITE RESTART

FIG.18


START
MEASURE INITIAL TEMPERATURE (Tini)
S201
WRITE START HIGH TEMPERATURE DETECTION NO.Z4=0
S202
DISK WRITE
S203
RECEIVE DATA
S204
MEASURE TEMPERATURE(T) ΔT=T−Tini
S205
S206
ΔT<A?
NO
YES
S207
NO
END?
YES
S208
WRITE STOP
END
Z4=Z4+1
S209
MEASURE TEMPERATURE(T) ΔT=T−Tini
S210
S211
ΔT<A?
NO
YES
S212
Z4<X4?
NO
YES
S214
CHANGE WRITE RATE
S213
WRITE RESTART